UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,732	04/19/2001	Frederick D. Busche	RSW920000182US1	9486

26502 7590 12/03/2004	EXAMINER
IBM CORPORATION IPLAW IQ0A/40-3 1701 NORTH STREET ENDICOTT, NY 13760	STARKS, WILBERT L

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		09/838,732	BUSCHE, FREDERICK D.
		Examiner	Art Unit	
		Wilbert L. Starks, Jr.	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _19 April 2001_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-40_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-40_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 U.S.C. §101

1.   35 U.S.C. §101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

the invention as disclosed in claims 1-40 is directed to non-statutory subject matter.

2.   Claims 1-40 are not claimed to be practiced on a computer, therefore, it is clear

that the claims are not limited to practice in the technological arts. On that basis alone,

they are clearly nonstatutory.

3.   Regardless of whether any of the claims are in the technological arts, none of

them is limited to practical applications in the technological arts. Examiner finds that *In*

re Warmerdam, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) controls the 35 US.C.

§101 issues on that point for reasons made clear by the Federal Circuit in *AT&T Corp.*

v. Excel Communications, Inc., 50 USPQ2d 1447 (Fed. Cir. 1999). Specifically, the

Federal Circuit held that the act of:

> ...[T]aking several abstract ideas and manipulating them together adds
> nothing to the basic equation. *AT&T v. Excel* at 1453 quoting *In re*
> *Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994).

Examiner finds that Applicant's "data sets" references are just such abstract ideas.

4.   Examiner bases his position upon guidance provided by the Federal Circuit in *In re Warmerdam*, as interpreted by *AT&T v. Excel*. This set of precedents is within the same line of cases as the *Alappat-State Street Bank* decisions and is in complete agreement with those decisions. *Warmerdam* is consistent with *State Street*'s holding that:

> Today we hold that *the transformation of data, representing <u>discrete dollar amounts,</u> by a machine through a series of mathematical calculations into a final share price*, constitutes a practical application of a mathematical algorithm, formula, or calculation because it produces 'a useful, concrete and tangible result" -- *a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.* (emphasis added) *State Street Bank* at 1601.

5.   True enough, that case later eliminated the "business method exception" in order to show that business methods were not per se nonstatutory, but the court clearly *did not* go so far as to make business methods *per se statutory*. A plain reading of the excerpt above shows that the Court was *very specific* in its definition of the new *practical application*. It would have been much easier for the court to say that "business methods were per se statutory" than it was to define the practical application in the case as "...the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price..."

6.   The court was being very specific.

7.   Additionally, the court was also careful to specify that the "useful, concrete and tangible result" it found was "a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." (i.e. the trading activity is the further practical use of the real world monetary data beyond the transformation in the computer – i.e., "post-processing activity".)

8.   Applicant cites no such specific results to define a useful, concrete and tangible result. Neither does Applicant specify the associated practical application with the kind of specificity the Federal Circuit used.

9.   Furthermore, in the case *In re Warmerdam*, the Federal Circuit held that:

> ...[T]he dispositive issue for assessing compliance with Section 101 in this case is whether the claim is for a process that goes beyond simply manipulating 'abstract ideas' or 'natural phenomena' ... As the Supreme Court has made clear, '[a]n idea of itself is not patentable, ... *taking several abstract ideas and manipulating them together adds nothing to the basic equation*. In re Warmerdam 31 USPQ2d at 1759 (emphasis added).

10.   Since the Federal Circuit held in *Warmerdam* that this is the "dispositive issue"
when it judged the usefulness, concreteness, and tangibility of the claim limitations in
that case, Examiner in the present case views this holding as the dispositive issue for
determining whether a claim is "useful, concrete, and tangible" in similar cases.
Accordingly, the Examiner finds that Applicant manipulated a set of abstract "data sets"
to solve purely algorithmic problems in the abstract (i.e., what *kind* of "data" is used?
Algebraic word problems? Boolean logic problems? Fuzzy logic algorithms?
Probabilistic word problems? Philosophical ideas? Even vague expressions, about
which even reasonable persons could differ as to their meaning? Combinations
thereof?) Clearly, a claim for manipulation of "data sets" is provably even more abstract
(and thereby less limited in practical application) than pure "mathematical algorithms"
which the Supreme Court has held are per se nonstatutory – in fact, it *includes* the
expression of nonstatutory mathematical algorithms.

11.   Since the claims are not limited to exclude such abstractions, the broadest
reasonable interpretation of the claim limitations includes such abstractions. Therefore,
the claims are impermissibly abstract under 35 U.S.C. §101 doctrine.

12.   Since *Warmerdam* is within the *Alappat-State Street Bank* line of cases, it takes

the same view of "useful, concrete, and tangible" the Federal Circuit applied in *State*

Street Bank. Therefore, under *State Street Bank*, this could not be a "useful, concrete

and tangible result". There is only manipulation of abstract ideas.

13.   The Federal Circuit validated the use of *Warmerdam* in its more recent *AT&T*

Corp. v. Excel Communications, Inc. decision. The Court reminded us that:

> Finally, **the decision in In re Warmerdam**, 33 F.3d 1354, 31
> USPQ2d 1754 (Fed. Cir. 1994) **is not to the contrary.** *** The court found
> that the claimed process did nothing more than manipulate basic
> mathematical constructs and concluded that 'taking several abstract ideas
> and manipulating them together adds nothing to the basic equation';
> hence, the court held that the claims were properly rejected under §101 ...
> Whether one agrees with the court's conclusion on the facts, the holding of
> the case is a straightforward application of the basic principle that mere laws
> of nature, natural phenomena, and abstract ideas are not within the
> categories of inventions or discoveries that may be patented under §101.
> (emphasis added) AT&T Corp. v. Excel Communications, Inc., 50
> USPQ2d 1447, 1453 (Fed. Cir. 1999).

14.   Remember that in *In re Warmerdam*, the Court said that this was the dispositive

issue to be considered. In the *AT&T* decision cited above, the Court reaffirms that this is

the issue for assessing the "useful, concrete, and tangible" nature of a set of claims

under §101 doctrine. Accordingly, Examiner views the *Warmerdam* holding as the

dispositive issue in this analogous case.

15.   The fact that the invention is merely the manipulation of *abstract ideas* is clear.

The data referred to by Applicant's phrase "data set" is simply an abstract construct that

does not limit the claims to the transformation of real world data (such as monetary data

or heart rhythm data) by some disclosed process. Consequently, the necessary

conclusion under *AT&T, State Street* and *Warmerdam,* is straightforward and clear.

The claims take several abstract ideas (i.e., "data sets" in the abstract) and manipulate

them together adding nothing to the basic equation. Claims 1-22 are, thereby, rejected

under 35 U.S.C. §101.

16.   Regarding the "apparatus" recitals in claims 15 – 28 and the presumed "product

of manufacture" claims in claims 29 - 40, the invention is still found to be nonstatutory.

Any other finding would be at variance with current case law. Specifically, the Federal

Circuit held in *AT&T v. Excel*, 50 USPQ2d 1447 (Fed. Cir. 1999) that:

> Whether stated implicitly or explicitly, <u>we consider the scope of</u>
> <u>Section 101 to be **the same regardless of the form** -- machine or process</u>
> <u>-- in which a particular claim is drafted</u>. AT&T v. Excel, 50 USPQ2d 1447,
> 1452 citing In re Alappat, 33 F.3d at 1581, 31 USPQ2d at 1589 (Rader, J.,
> concurring) (emphasis added.)

17.   Examiner considers the scope of Section 101 to be the same regardless of

whether Applicant *claims* a "process", "machine", or "product of manufacture". While

the "apparatus" recitals in the preambles of claims 15 – 28 make the claims ostensibly

drawn to be "apparatus" claims, they are insufficient by themselves to <u>limit</u> the claims to

statutory subject matter. Likewise, the presumed attempts to limit claims 29 - 40 to

"product of manufacture" claims are insufficient by themselves to <u>limit</u> the claims to

statutory subject matter. Examiner's position is clearly consistent with *Alappat,* and

AT&T and is implicitly consistent with *Warmerdam* and *State Street.* Accordingly, those

claims are also properly rejected.

Claim Rejections - 35 U.S.C. § 112

The following is a quotation of the first paragraph of 35 U.S.C. §112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-40 are rejected under 35 U.S.C. §112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a §101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed *how* to practice the *undisclosed* practical application. This is how the MPEP puts it:

> ("The how to use prong of section 112 **incorporates as a matter of law** the requirement of 35 U.S.C. 101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of fact to satisfy 35 U.S.C. §101, then the application **also fails as a matter of law** to enable one of ordinary skill in the art to use the invention under 35 U.S.C. § 112."); In re Kirk, 376 F.2d 936, 942, 153 USPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, **otherwise an applicant would anomalously be required to teach how to use a useless invention.**").See, MPEP 2107.01(IV), quoting In re Kirk (emphasis added).

Therefore, claims 1-40 are rejected on this basis.

Claim Rejections - 35 U.S.C. §102

18.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

19.   Claims 1, 15, and 29 are rejected under 35 U.S.C. §102(b) as being anticipated

by Menon et al[1]. Specifically:

Claim 1, 15, and 29

Claim 1, 15, and 29's "generating a first distribution of a **training data set;**" is

anticipated by Menon, et al, claim 24, where it recites:

24. A method of pattern recognition comprising:

receiving a plurality of training input patterns of a data type from a plurality of subject classes during a training operation;

forming a set of categories of the **training input patterns**;

generating a category definition for each category according to training input patterns received within the category;

counting the number of training input patterns received for each class within each category;

for each category, generating a training histogram of the training input patterns received within the category, the training histogram including counts of training input patterns of each class received within the category;

receiving at least one test input pattern of the data type from a subject during a testing operation;

computing a correlation between a category definition and each test input pattern;

forming a category association between each test input pattern and a category based on the correlation; and

forming an observation histogram to classify the subject, the observation histogram being formed from each training histogram of each category of each category association and representing counts of training input patterns received by the training subsystem during the training operation, classification of the subject being determined by a peak class of the observation histogram, the peak class representing the highest training input pattern count of the observation histogram.

Claim 1, 15, and 29's "generating a second distribution of a **testing data set;**" is anticipated by Menon, et al, claim 24, where it recites:

> 24. A method of pattern recognition comprising:
>
> receiving a plurality of training input patterns of a data type from a plurality of subject classes during a training operation;
>
> forming a set of categories of the training input patterns;
>
> generating a category definition for each category according to training input patterns received within the category;
>
> counting the number of training input patterns received for each class within each category;
>
> for each category, generating a training histogram of the training input patterns received within the category, the training histogram including counts of training input patterns of each class received within the category;
>
> <u>receiving at least one **test input pattern** of the data type from a subject during a testing operation;</u>
>
> computing a correlation between a category definition and each test input pattern;
>
> forming a category association between each test input pattern and a category based on the correlation; and
>
> forming an observation histogram to classify the subject, the observation histogram being formed from each training histogram of each category of each category association and representing counts of training input patterns received by the training subsystem during the training operation, classification of the subject being determined by a peak class of the observation histogram, the peak class representing the highest training input pattern count of the observation histogram.

Claim 1, 15, and 29's "**comparing the first distribution and the second distribution** to identify a discrepancy between the first distribution and the second distribution; and" is anticipated by Menon, et al, claim 24, where it recites:

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[1] Menon et al. (U.S. Patent Number 5,537,488; dated 16 JUL 1996; class 382; subclass 170.)

24. A method of pattern recognition comprising:

receiving a plurality of training input patterns of a data type from a plurality of subject classes during a training operation;

forming a set of categories of the training input patterns;

generating a category definition for each category according to training input patterns received within the category;

counting the number of training input patterns received for each class within each category;

for each category, generating a training histogram of the training input patterns received within the category, the training histogram including counts of training input patterns of each class received within the category;

receiving at least one test input pattern of the data type from a subject during a testing operation;

computing a **correlation between a category definition** and each **test input** pattern;

forming a category association between each test input pattern and a category based on the correlation; and

forming an observation histogram to classify the subject, the observation histogram being formed from each training histogram of each category of each category association and representing counts of training input patterns received by the training subsystem during the training operation, classification of the subject being determined by a peak class of the observation histogram, the peak class representing the highest training input pattern count of the observation histogram.

Claim 1, 15, and 29's **"modifying selection** of entries in one or more of the training data set and the testing data set based on the discrepancy between the first distribution and the second distribution." is anticipated by Menon, et al, claim 28, where it recites:

28. The method of claim 27 wherein if the correlation between a training input pattern and a best match category definition vector is below a threshold, a **new category is defined**.

Conclusion

20.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

A.   Arbabi, Mansur et al. (U.S. Patent Number 5,461,699; dated 24 OCT 1995; class

       706; subclass 21) discloses forecasting using a neural network and a statistical

       forecast.

B.   Skeirik, Richard D. (U.S. Patent Number 5,408,586; dated 18 APR 1995; class

       706; subclass 25) discloses a historical database training method for neural
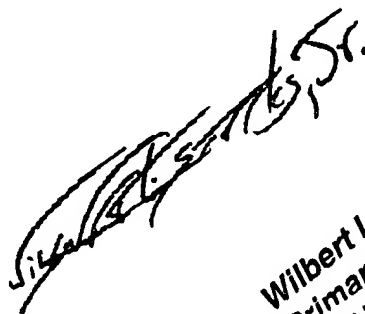
       networks.

Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Wilbert L. Starks, Jr. whose telephone number is (571)

272-3691.

Alternatively, inquiries may be directed to the following:

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WLS

27 November 2004